



Study Handbook
Master of Science in Neuroengineering

Winter Term 2018/19

www.msne.ei.tum.de

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Master of Science in Neuroengineering (MSNE)

www.msne.ei.tum.de

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– Student Services Office –
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Legally valid are only the official published general academic and examination regulations for bachelor's and master's programs (APSO) at Technische Universität München and the Academic and Examination Regulations for the master's program in Neuroengineering (FPSO).

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Preface

Dear MSNE Student,

The intent of this handbook is to explain the regulations of the MSNE program and to provide you with a “road map” for your studies, beginning with the planning of the first semester and ending with the graduation two years later.

As an introduction, Chapter 1 gives some hints on where to find general information about studying at TUM. Chapter 2 presents the program and explains the study goals. Chapter 3 is the main part of the booklet. It includes guidelines for modules/courses, research projects, and the master’s thesis. The basic structure of the program is shown and the different parts are explained, followed by a list of requirements for graduation.

We hope that this handbook will help to answer most of your questions. If you have any comments on how to improve this booklet, do not hesitate to communicate your ideas.

Further information can be found on the website: www.msne.ei.tum.de

The primary point of contact for queries related to the MSNE are personal meetings with the Manager (please arrange for appointments) or the e-mail address: msne@ei.tum.de

Sincerely,

Prof. Dr. Gordon Cheng
Prof. Dr. Jakob Macke
Program Directors

Dipl.- Ing. Florian Rattei
Program Manager

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1 General Information about Studying at TUM

The website www.tum.de/en/studies/ offers some interesting facts about TUM and its study programs. You will also find important information concerning formalities, such as enrollment, residence permit, health insurance etc. Please read those pages very carefully.

It is very important that you make sure that the program management knows your exact residence and e-mail address. Also this address should be correct in your TUMonline account. Failure to do so may result in loss of essential documents for enrollment and studies.

The official university calendar, which includes the semester breaks and holiday, can be found here:

www.tum.de/en/studies/application-and-acceptance/dates-and-deadlines/

2 Overview & Study Goals of the MSNE Program

Neuroengineering is an emerging interdisciplinary field that aims to translate findings in neuroscience to real-world practical engineering applications. The successful development of neuro-inspired technical approaches will lead to a new generation of smart systems, which achieve complex functions in an efficient manner, and will simultaneously advance our understanding of neuroscience.

The ENB Elite Master of Science program in Neuroengineering (MSNE) at the Technical University of Munich (TUM) is a two-year graduate program with an optional Research Excellence Certificate. The two-year program includes a 9-week research project to be performed at a research institution or in industry and a 6-month period for the completion of the master's thesis. The program is taught in English. It is hosted by the Department of Electrical and Computer Engineering and the Center of Competence on Neuroengineering. It has started in October 2016.

The MSNE program is interdisciplinary and combines experimental and theoretical neuroscience with profound training in engineering. Besides taking a series of mandatory core courses, students will have the opportunity to choose from electives from multiple disciplines and to gain research experience under the guidance of world-renowned faculty. The program aims to attract high-profile international and national students and will provide a unique skill set that could open up career possibilities beyond the conventional job market.

The core skills acquired in the MSNE program are complemented by hands-on practicals, early-career training for independent research (e.g. project design, or presentation and debating skills), and awareness of ethical aspects and societal acceptance of neuro-technology. The MSNE program offers exclusive interdisciplinary education with integrated soft-skills training (e.g. science-communication, entrepreneurship, leadership), so that graduates can serve the growing academic, economical, and societal demand better.

3 MSNE Study Guidelines

The following description of the basic structure of modules and courses at TUM is helpful for a better understanding of TUMonline System. Modules are the building blocks of Master's programs at TUM. A module consists of one or more courses with aligned content and schedules, offered in form of lectures, tutorials, labs, seminars, project work, etc. The module description provides information on how the content of the module is structured and presented, recommended background knowledge and literature recommendations, and the learning outcomes. Module descriptions as well as courses can be found in TUMonline portal (www.campus.tum.de), the central campus management system. All module descriptions for a particular school can be found by clicking on the respective academic department on the homepage of the TUMonline portal and then by following the "Module Handbook" link. All courses for a particular school can be found by clicking on the respective academic department on the homepage of the TUMonline portal and then by following the "Course" link. Each module has a unique module number (e.g. "EI60002"), helping you to find the corresponding modules in your curriculum as well as in TUMonline. Further information on this basic structure and a TUM-Online Handbook for students can be found here:

www.tum.de/en/studies/during-your-studies/course-offerings/

3.1 Structure of the Program

The MSNE program is a two-year program, divided into four semesters. This includes a 9-week period for a research project and a 6-month period for the completion of the Master's Thesis. Courses start in mid of October. The following schedule gives an overview:

Recommended Schedule for the Program

Mid October - mid February	Semester 1
End of February	Final exams for semester 1
March - mid April	Spring break (or opt. 6 week research project)
Mid April - July	Semester 2
Mid to end of July	Final exams for semester 2
August - mid October	9 week research project
Mid October - mid February	Semester 3
End of February	Final exams for semester 3
March - September	Semester 4: master's thesis
October/November	Graduation

The MSNE curriculum consists of modules for the MSNE-Program (i.e. for getting a master's degree) and additional modules for the optional Research Excellence Certificate (i.e. for getting a master's degree along with the classification "with honours").

The MSNE curriculum is based on required modules and mentor-approved elective modules. Required modules are mandatory for all students enrolled in the MSNE program, i.e. students must pass all of them. Elective modules (also called "Electives" for the sake of brevity) may be selected by students along with a mentor. All elective modules, also those listed in the MSNE curriculum, require this mentor-approval.

At the end of a semester, the final exams for each module take place. The rules for repeating

exams are described later. If students do not pass an elective module, they may repeat it or replace it with another elective module, as long as the new module is also mentor-approved. All modules listed in the column “Research Excellence Certificate” (REC) of the MSNE curriculum are optional, since the certificate is optional itself. Students do not have to apply or register for the REC. As a default, all electives passed are assigned to the MSNE program. By having successfully completed the MSNE program (i.e. in most cases by finishing the Master’s Thesis), the electives on top of the graduation requirements for the MSNE Program will be assigned to the REC. If all requirements for the REC are fulfilled, the certificate will be awarded.

Most required modules in MSNE are consisting of weekly lectures of two SWS¹, a weekly tutorial of one SWS and a weekly hands-on lab of another one SWS. Almost all modules are taught by the department’s professors. Tutorials and labs are mostly taught by teaching assistants supported by student tutors. The schedule for each semester enables students to attend all required modules, as long as students follow the suggested 4 semester scheme. Students should select and attend to their individual elective modules in a way and sequence leading to no significant time overlap with required modules.

In the first semester, the mentors might decide on having a specific module serving to catch-up with knowledge and skills required as a prerequisite for a successful start in the MSNE study program. If required for an individual student, the elective module of the first semester will be a so called makeup module. The makeup module serves to balance different levels of students coming from various domains. Students are strongly encouraged to take this makeup module in the first semester. The MSNE program is offering special modules for this purpose.

Students opting for the optional REC are encouraged to take a 6-week research project in the first semester break.

In the second semester, students also participate in a literature seminar where they prepare presentations and write essays about a particular research topic. After the second semester students should do a 9 week, full-time research project preferably at a chair at TUM or LMU or in one of the partner institutions.

In the third semester, students will participate in another literature seminar and foster their capabilities in scientific debating. The third semester serves as a specialization phase, allowing students to intensify a certain direction by selecting 2 (or 3 in case of the REC) elective modules as well as generating a substantial awareness of societal expectations and societal needs or neuroengineering technology.

A fundamental part of the program is the Master’s Thesis. It gives students the opportunity to explore a topic of their choice in depth. The thesis enables students to improve research, analytic, and managerial skills. Research and analytic skills include the application methods and knowledge learned in the courses and through literature review. Managerial skills include planning and doing a project in a limited period of time.

You may vary the sequence of all modules according to your individual constraints. Hence, the MSNE program will offer all courses as close as possible to this basic scheme. We recommend all students to follow this suggested plan.

The sequence and timing of the research projects (2 projects and 3 semester breaks) can be modified easily, without major impact on the overall schedule. Therefore, we recommend to use this flexibility first and to stay with the recommended sequence of mandatory modules as far as possible.

After having successfully completed the program, students are awarded the Master of Science (M.Sc.) in Neuroengineering degree. This academic degree entitles students to enter doctoral programs. If students are interested in pursuing a doctorate at TUM we strongly recommend that

¹ SWS is the German acronym for “Semesterwochenstunden”, i.e. weekly semester hours. 1 SWS is equivalent to 45 Minutes.

they acquire a good command of the German language during the two years of the MSNE program, as this will increase their chances of being offered a doctoral research position.

3.2 MSNE Curriculum

The MSNE program is designed as a 2-year full-time program, which requires students to complete 120 ECTS to obtain the academic degree Master of Science in Neuroengineering. An optional Research Excellence Certificate (REC) can be obtained by completing additional 30 ECTS in parallel.

Suggested Curriculum over 4 Semesters

Semester	MSNE Program		Research Excellence Certificate (Optional)	
		ECTS		ECTS
1 (winter)	Neuro-Recording Methods	5	Elective	5
	Mixed Signal Electronics in Neuroengineering	5		
	Neuro-Anatomy and Neuro-Physiology	5		
	Computational Neuroscience	5		
	Elective (or makeup elective)	5		
			6 Week Research Project	8
2 (summer)	Large-Scale Modeling and Large-Scale Data Analysis	5	Elective	5
	Signal Processing, Dynamic System Modeling	5		
	Statistics and Probability Theory	5		
	Literature Seminar, Scientific Debating, Colloquium	6		
	Elective	5		
9 Week Research Project		12		
3 (winter)	Neuro-inspired Systems Engineering	6	Elective	5
	Societal Impact, Ethics	5		
	Literature Seminar, Scientific Debating, Colloquium	6		
	Elective	5		
	Elective	5		
			Neuroengineering Symposium	2
4 (summer)	Master Thesis	30	Elective	5
Total		120		30

Modules in the MSNE Program:

- **Modules in Semester 1**

Module Number	Module	Lecturer(s)	Dep.	Semester	Credits
ME60001	Neuro-Recording Methods	Westmeyer, Sirota, Ploner, Wohlschläger	ME ²	WS	5
EI60002	Mixed Signal Electronics in Neuroengineering	Wolfrum	EI ³	WS	5
ME60003	Neuro-Anatomy and Neuro-Physiology	Jacob, Misgeld	ME	WS	5
EI60004	Computational Neuroscience	Macke	EI	WS	5
	Elective (or makeup elective)			WS	5

- **Modules in Semester 2:**

Module Number	Module	Lecturer(s)	Dep.	Semester	Credits
EI60005	Large-Scale Modeling and Large-Scale Data Analysis	TBA	EI	SS	5
EI60006	Signal Processing, Dynamic System Modeling	Seeber et al.	EI	SS	5
EI60007	Statistics and Probability Theory	Macke, Gjorgjieva	EI	SS	5
EI60008	Literature Seminar 1, Scientific Debating, Colloquium	Various	EI	SS	6
	Elective			SS	5

After Semester 2, students take a 9-week research project with 12 ECTS (EI60016)

- **Modules in Semester 3:**

Module Number	Module	Lecturer(s)	Dep.	Semester	Credits
EI60009	Neuro-inspired Systems Engineering	Cheng	EI	WS	6
POL70073	Societal Impact, Ethics	Maasen	GOV ⁴	WS	5
EI60012	Literature Seminar 2, Scientific Debating, Colloquium	Various	EI	WS	6
	Elective			WS	5
	Elective			WS	5

- **Modules in Semester 4:**

Module Number	Module	Supervisor	Dep.	Semester	Credits
EI8950	Master's Thesis			WS	30

² ME = TUM School of Medicine

³ EI = TUM Department of Electrical and Computer Engineering

⁴ GOV = TUM School of Governance

Modules for the optional Research Excellence Certificate:

Module Number	Module	Lecturer(s)	Dep.	Semester	Credits
	Elective			1 st	5
EI60013	6-Week Research Project			1 st 2 nd	8
	Elective			2 nd	5
	Elective			3 rd	5
EI60011	Neuroengineering Symposium	TBA	EI	3 rd 4 th	2
	Elective			4 th	5

The modules for the REC will be listed in a separate section of your final certificate, including the module credits and grades achieved. Hence, the grades of the REC modules will not count toward the final grade in the MSNE program.

3.3 Mentoring Concept

Every student will closely interact with an assigned mentor from the associated faculty from the very beginning of studies. Together they plan and adjust the student's elective curriculum, and regularly discuss progress. The mentor supports by giving a reasonable direction to the individual curriculum, without blocking the students' individual preferences. In addition, the mentor will act as first confidential contact for individual study-related problems. An assembly of mentors and teachers of major elective courses ("**Teaching Committee**") will meet regularly to discuss all students' academic progress at large, and seek solutions for general, non-individual problems that might arise, or for the most severe individual student issues.

Constraints

According to the MSNE-specific regulations (FPSO), students have to take at least 20 ECTS elective modules for the master degree. In addition, opting for the optional Research Excellence Certificate, another 20 ECTS elective modules are required.

All modules in the electives part of the curriculum require the acknowledgment of a mentor. The FPSO defines among other things two important constraints:

- a) **Makeup Module:** A mentor-assigned makeup module in the first semester allows students to fill-in possibly underrepresented knowledge depending on their earlier education program; such as "Fundamentals of computer science for Neuroengineering" (EI60014), "Fundamentals of mathematics for Neuroengineering" (60022). Students without required makeup module can already select a first elective module. Makeup modules must not become part of the Research Excellence Certificate.
- b) **Modules in German Language:** Students who have not proven **German language proficiency** during enrollment must select at least one elective module offered in German language or offered bilingually (German and English Modules). Instead of such an elective module, students can also take a German language module e.g. offered by the TUM Language Center. This language module will not become part of the MSNE curriculum and it will be listed in a separate section of your final transcript. In case of conditional admission (check admission letter), German language proficiency must be completed latest at the **end of the second semester**.

Mentor

Mentors are nominated by the MSNE directors and approved by the Board of Examiners MSc⁵ of the Department of Electrical and Computer Engineering. The list of MSNE mentors is available on the website. With the beginning of the first semester each student gets assigned a mentor. A re-assignment is possible due to good reason and with mutual consent (student, old mentor, and new mentor issue a formless request to the directors) or based on director's decision. Criteria are among others a good thematic fit as well as continuity in the mentor-student assignment.

Learning Agreement

Students propose elective modules fitting to their specific direction within neuroengineering to the mentor. Both discuss the best options and agree on an individual curriculum, the "Learning Agreement". The form sheet for the Learning Agreement will be signed by mentor and student and forwarded to the MSNE program manager (msne@ei.tum.de) afterwards. A non-comprehensive overview on electives with neuroengineering context is available at the MSNE program website and can serve as an orientation for students and mentors. As a principle, modules offered by the Department of Electrical and Computer Engineering must be at master's level and modules offered by other TUM faculties or LMU shall be on master's level. Students are responsible for selecting and scheduling elective modules in a way not conflicting with their curriculum. They should proactively approach lecturers of electives, especially in modules offered by LMU (TUM students have no guarantee to attend LMU lectures automatically).

Within the learning agreement, there is no assignment of elective modules to the MSNE program on the one hand and the Research Excellence Certificate on the other hand. Exceptions are makeup modules and at least one module in German language (see above), which always have to become part of the MSNE program. For the purpose of the academic progress check, all electives which can become part of the MSNE program are considered. The student can freely choose among all electives listed in the learning agreement, as long as the constraints indicated above are fulfilled. The learning agreement can get changed anytime by mutual agreement.

Mentoring Process Schedule

At the very beginning, students and mentors should discuss possible directions (e.g. Electronic System Design, Computational Neuroscience, Medical Systems, etc.) and validate this decision after the first semester. This decision for a certain direction builds a flexible framework for all the electives in the Learning Agreement. Students as well as mentors are encouraged to setup the Learning Agreement early and to update it in a way preserving freedom for the students to plan the upcoming semester, to arrange with the lecturers and to register for the electives.

For the first semester, the MSNE directors along with the mentors decide on the individual requirement of makeup modules. In order to enable students to attend other electives from the very beginning, the first student-mentor meetings should be arranged early in semester. Students are encouraged to select their first elective module from the overview list of electives provided on the MSNE website, attend the first classes and enter into the discussion with the mentors ideally within the first 4 weeks of the lecture period.

Exam results in elective modules will only get validated, if a corresponding Learning Agreement has been provided to the Program Manager. The Learning Agreement must be provided in the same semester the module was examined!

⁵ in German: "Masterprüfungsausschuss"

3.4 Graduation Requirements

To receive the academic degree “*Master of Science in Neuroengineering*”, students have to pass all modules listed in the Column “MSNE Program” of the MSNE Curriculum.

To receive the academic degree “*Master of Science in Neuroengineering*” along with the classification “with Honours”, students have to pass all modules listed in the Column “MSNE Program” of the MSNE Curriculum and – while they are enrolled for the MSNE program – all modules for the Research Excellence Certificate.

3.5 Course-Work and Lab Requirements

3.5.1 Grading Scale

The grading scale ranges from 1.0 to 5.0, where 1.0 is the best and 5.0 the worst grade.

The following grades are possible:

1.0	1.3	1.7	2.0	2.3	2.7	3.0	3.3	3.7	4.0	4.3	4.7	5.0
very good		good			satisfactory			sufficient		fail		

Students must report a grade of 4.0 to pass a module. Failed exams in Modules can be repeated according to the academic progress check. It is not possible to repeat passed exams. Grades from the required modules, electives, as well as the Master’s Thesis count towards the final grade point average according to their credit weight. The 9-week research project will not count toward the final grade.

Most modules only have a final exam. In addition, in some modules there are mid-term exams and/or graded homework, where the professors decide how the grades are credited towards the final exams. More information about the types of exams are given in the module description on the MSNE website or in TUMonline. The final exams are scheduled immediately after the end of the semester in which the course was offered.

3.5.2 Academic progress check

The academic progress check is part of the “*General Academic and Examination Regulations for Bachelor’s and Master’s Programs (APSO) at the Technische Universität München*” and the Academic and Examination Regulations for the Master’s program in Neuroengineering (FPSO). A translated APSO is available, hence only the officially promulgated German versions are legally valid!

https://portal.mytum.de/archiv/kompodium_rechtsangelegenheiten/apso/folder_listing (APSO)

<http://www.ei.tum.de/studium/formularedownloads/> (FPSO)

To comply with the standard duration of study, students should achieve 30 credits per semester (APSO). Students are expected to earn a minimum of 22 credits per semester (APSO). Among other things, APSO and FPSO are defining check intervals in order to ensure the academic progress:

Students will receive a **warning** (APSO)

- in case of less than 15 credits after first semester
- in case of less than 45 credits after second semester
- in case of less than 75 credits after third semester
- in case of less than 105 credits after fourth semester

Students **must** receive a minimum number of credits per semester (APSO, FPSO)

- at least 25 credits of the required modules in the MSNE program by the end of the second semester
- at least 30 credits by the end of the third semester
- at least 60 credits by the end of the fourth semester
- at least 90 credits by the end of the fifth semester
- at least 120 credits by the end of the sixth semester

Whenever students expect to struggle with one of these regulations, they should contact the program manager immediately. **Failure to meet the APSO and FPSO requirements leads to termination of MSNE academic studies⁶ !**

3.6 Exams

Failed exams can be repeated up to a certain time limit. Electives alternatively can even be replaced by other mentor-approved modules.

3.6.1 Board of Examiners

The Board of Examiners MSc (in German “*Masterprüfungsausschuss*”) of the Department of Electrical and Computer Engineering is responsible for all issues concerning exams and grades in your program:

Board of Examiners MSc
 Department of Electrical and Computer Engineering
 Chair: Prof. Dr.-Ing. Erwin Biebl
 Secretary: Dipl. Ing. Benita Paraschoudis
 Delegate:

Please contact the MSNE Program Manager first (E-Mail: msne@ei.tum.de) since many aspects of exams and grades can be clarified and solved easily.

3.6.2 Registration of Courses and Labs for Exams

Each semester you must officially register in TUMonline for the exams for all modules which you are attending during the semester. You will be informed by the MSNE team about the registration period.

Do not forget to register in time, a late registration is not permitted.

Apart from the MSNE curriculum, additional courses (also courses in German) may be attended. However, these extra courses do not count toward your MSNE curriculum. But you also have to register these exams in TUMonline.

⁶ In German: „Exmatrikulation“

3.6.3 Identification during Exams

During an exam all students are requested to present a valid government-issued identity document with picture (i.e. their passport or national identity card), and a proof of enrollment (i.e. student card). Note that the student cards with pictures or public transportation documents with pictures are not valid proofs of identify.

3.6.4 Withdrawal of Registered Exams, Illness

If a student is not able to attend an exam he or she is registered for, he or she can formally declare the withdrawal. The reason for the withdrawal must be specified and documented by appropriate certificates. In case of illness, a medical certificate by a physician must be provided. The medical certificate must be issued at the day of the missed exam and has to be immediately submitted to the Board of Examiners office or to the program manager.

3.6.5 Transcript of Records

A transcript of records with your grade can be downloaded via your TUMonline account. If you need a signed and stamped transcript, please send us an e-mail: msne@ei.tum.de

3.7 Research Project Guidelines

The research project has the format of an independent research project work that integrates in or attaches to a larger existing research project; but that not only contains manual task, but also planning and conceptual elements that are similar to the scope in professional life reflecting an engineering approach, including written documentations and presentations. Every participant works on an individual task in an independent way. Every participant is assigned a supervisor matching the topic. The research project is assessed based on a project report (pass/fail credit requirement). The research project module description in TUMonline provides further information. You must register research projects in advance, corresponding forms are provided on the MSNE website. A straight-forward way is to do the research project at a TUM institute, under supervision of an MSNE examiner. Hence, you can also do your projects somewhere else, as long as a MSNE examiner formally agrees to the project plan and finally decide on successful completion (a passed / not passed assessment). A list of MSNE examiners is included in this document.

3.7.1 Duration and Timing

The research project is a career-related, full-time (approx. 35-40 hours per week) professional experience at a university (preferably) or in industry with a minimum length of 9 weeks (6 weeks in case of the research project for the REC). Students should schedule it immediately after the second semester until the beginning of the third semester. It has to be completed latest after the sixth semester. Please consider the following suggested timeline:

March	Start looking for research project
End of July	Final exams for semester 2
August through mid October	Research project
Mid October	Semester 3 begins
End of October	Hand in the required paperwork

3.7.2 Research Project Arrangement & Registration

Students must arrange for a research project themselves.

To find a research project, please contact the chairs directly. Some chairs list available projects on their website. If you want to do the research project in industry (project during an internship) you have to find a professor at TUM who will supervise it. Please find a professor before signing any industry contract to avoid any inconvenience. Once you have found a research project, please report it to the program manager. In case you need a confirmation that a research project is required by your curriculum, please contact us: msne@ei.tum.de

3.8 Master's Thesis Guidelines

In the fourth semester, students must write a Master's Thesis under the supervision of a department professor. The duration of the master's thesis is 6 months of full-time involvement. The thesis is worth 30 credits.

Students must fulfill course work requirements of at least 60 credits to be allowed to start the thesis work.

Students are responsible for finding a topic for a Master's Thesis. To be able to start in the fourth semester and use the full 6 months, topic arrangements must be completed during the lecture period of the 3rd semester. Please take into account that the arrangements might take some time.

In order to arrange a Master's Thesis you should contact a professor a research assistant with whom you share an interest. Research areas and open topics are posted and described at the bulletin board of the chairs or on the respective website. In some cases, one may do the Master's Thesis in a company within an existing research partnership with one of the department's chairs or at another University. A Master's Thesis in industry cannot be arranged directly with industry partners - it can only be performed at the industry partner when a supervising professor at the university agrees to this. The supervision is still done by the supervising professor. Please be sure to follow the legal rules imposed by the respective chairs and companies.

3.9 Final Grade Average

The final grade point average is the weighted average of the individual final grades of the required and elective modules in the MSNE program and the Master's Thesis according to the credit weight.

3.10 Confirmations

For any certificates related to your studies (e.g. transcript, confirmation of your studies, etc.) please contact the MSNE Program Manager: msne@ei.tum.de

4 Additional Information

4.1 Computer Access

Computer access is available to all students within the EIKON project.

Detailed information is available:

<http://www.eikon.tum.de>

4.2 Room Finder

Orientation around campus is facilitated by the TUM room finder:

<https://portal.mytum.de/campus/roomfinder>

4.3 Accommodation

The MSNE program does not provide students with accommodation. It is the responsibility of each student to arrange for his/her own accommodation.

4.4 Scholarships

The MSNE program itself does not offer scholarships. Exceptionally qualified students may receive scholarships covering living expenses either from DAAD, Bayhost, companies, their home university, or another private or governmental institution. TUM provides further information on a website:

<http://www.tum.de/en/studies/fees-and-financial-aid/scholarships/scholarship-database/>

4.5 Student Fee and Leave of Absence

Student Fee

All students must re-enroll before the next semester starts if they want to continue their studies.

Currently, the deadline for paying the tuition fee is 15 August for winter semester and 15 February for summer semester.

All information about the student fee is available on the website:

<http://www.tum.de/en/studies/fees-and-financial-aid/payment-of-fees/>

Leave of Absence

For important reasons (e.g. illness attested by physician, maternity or paternity leave, time off to care for a close relative), students can take a leave of absence for a whole semester.

On the following website you could find more information:

<http://www.tum.de/en/studies/during-your-studies/leave-of-absence/>

While taking a leave of absence, you also have to pay the semester fees. You are not allowed to take part in exams for the first time but you are allowed to take repeated exams.

If you take a leave of absence due to maternity or paternity, you are also allowed to write “regular” exams.

4.6 Elite Network of Bavaria (ENB)

Elite Graduate Programs offer an ideal academic setting to exceptionally talented and highly motivated students. The MSNE study program is an Elite Graduate Program supported by the Elite Network of Bavaria, an initiative of the Bavarian State Ministry of Education, Science and the Arts.

The ENB invites all students of its supported programs to register in the ENB Community Portal. The membership is a requirement for receiving a separate REC certificate issued by the ENB. By becoming a member of the Elite network of Bavaria, you will get invitations to academic and societal events and you get in contact with all other students of elite programs. Building an academic network is crucial for any career option following your MSNE program. We strongly encourage you to intensively interact and contribute to this unique and excellent network!

<https://www.elitenetzwerk.bayern.de/>

You will receive an invitation to join this network soon.

5 Program Directors, Program Manager, MSNE Examiners and Mentors

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5.1 MSNE Examiners

Kindly see MSNE website

5.2 MSNE Mentors

Kindly see MSNE website